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(FILE 'HOME' ENTERED AT 10:08:40 ON 05 MAR 2003)
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E ZIVITZ /AU
L1 14399 S AMPEROMET?
L2 11798 S L1 AND(SENSOR OR BIOSENSOR OR BIOSENSING OR SENSING OR DETECTOR OR DETECTING OR DETECTION OR MEASUR? OR MONITOR? OR MICROSENS? OR ELECTRODE OR MICROELECTRODE)
L3 14 S L2 AND(NOISE OR NOISY OR COTRELL OR COTTRELL)/TI,IT,ST
L4 8 S L2 AND(NOISE OR NOISY OR COTRELL OR COTTRELL)(5A)(REMOV? OR CANCEL? OR ELIMINAT? OR REDUC? OR COMPENSAT?)
L5 1 S L2 AND(NOISE OR NOISY OR COTRELL OR COTTRELL)(5A)INTERFER?
L6 18 S L3-5

=> d 16 bib,ab 1-18

L6 ANSWER 4 OF 18 CA COPYRIGHT 2003 ACS
AN 130:357242 CA
TI Low-**noise amperometric detector** for use in capillary electrophoresis
AU Fu, Chonggang; Wang, Lixin
CS Department of Chemistry, Liaocheng Teacher's College, Liaocheng, 252059, Peop. Rep. China
SO Instrumentation Science & Technology (1999), 27(3), 199-205
AB A low noise **amperometric detector** suitable for capillary electrophoresis was constructed from integrated operational amplifiers with low noise and low input bias current. It includes a potentiostat and a vertical wall-jet **detection** cell. The circuit design of the potentiostat, the construction of the **detection** cells, and methods for minimizing the noise are described. Performance tests of the **detector** were performed for the detn. of catecholamines.

L6 ANSWER 8 OF 18 CA COPYRIGHT 2003 ACS
AN 121:169315 CA
TI maximizing signal-to-**noise** ratio in direct current and pulsed **amperometric detection**
AU Rocklin, Roy D.; Tullsen, Tom R.; Marucco, Mark G.
CS Dionex Corporation, 1228 Titan Way, Sunnyvale, CA, 94088-3603, USA
SO Journal of Chromatography, A (1994), 671(1-2), 109-14
AB The magnitude of signal obtained during d.c. and pulsed **amperometric detection** (in HPLC) using a thin-layer type cell is dependent on several factors, 2 of which are controlled by the cell design. These 2 factors are the surface area of the working **electrode** and the mobile phase velocity over the surface of the working **electrode**. Mobile phase velocity is controlled by the thickness and width of the thin-layer channel gasket. The effect of varying working **electrode** size and gasket dimensions are studied. Using 1 mm diam. working **electrodes** and a 25 μm x 1.3 mm gasket, the min. **detection** limit for dihydroxybenzylamine is ~6 fmol and for glucose, ~200 fmol.

L6 ANSWER 11 OF 18 CA COPYRIGHT 2003 ACS
AN 117:123733 CA
TI Cross correlation with digital techniques in flow injection analysis and high performance liquid chromatography
AU Curran, D. J.; McKean, R. E.
CS Dep. Chem., Univ. Massachusetts, Amherst, 01003, Morocco
SO Electroanalysis (1992), 4(4), 495-500
AB Digital techniques are implemented to demonstrate the use of cross

correlation to improve the signal-to-noise ratio for **measurements** involving analog **detectors** in flowing stream anal. methods. Two examples are presented. The first involves **amperometric detection** of dopamine using flow injection anal. The ref. and analyte signals are digitized and cross correlation performed by software using the fast Fourier transform (FFT). The second example is the detn. of a mixt. of catecholamines by HPLC using a UV **detector**. Multiplication of the digitized ref. and analyte signals was carried out in the time domain followed by low pass filtering. Improvement in the signal-to-noise ratio up to a factor of 35 was found, depending on the compd.

L6 ANSWER 15 OF 18 CA COPYRIGHT 2003 ACS
AN 109:162387 CA
TI **Noise** at **microelectrodes** and **microelectrode** arrays in **amperometry** and voltammetry
AU Long, John T.; Weber, Stephen G.
CS Dep. Chem., Univ. Pittsburgh, Pittsburgh, PA, 15260, USA
SO Analytical Chemistry (1988), 60(20), 2309-11
AB Electroanal. and phys. **measurements** require high precision of **measured** current. Noise in the **measured** current was detd. as a function of **electrode** area for **microelectrode** arrays. Both const. potential and swept potential expts. were performed. The results are in agreement with a model for noise (variance in the current) that, in simplified form, has three terms: a variance in the input bias current in the current to voltage converter, a current variance resulting from potential fluctuations across the interfacial impedance (mostly capacitive), and a current variance equaling the square of the back-ground current times the relative variance in the interfacial impedance. The influence of the first can be discerned for carbon **electrodes** with areas around 10-6 cm2, but is negligible for larger areas. The noise in voltammetric expts. is dominated by the third term. The proportionality between background current and std. deviation of background current is around 500. This is in the same range as the ratio calcd. for const. potential expts.

L6 ANSWER 16 OF 18 CA COPYRIGHT 2003 ACS
AN 100:202775 CA
TI Behavior of solid **electrodes** in anodic flow-through systems with respect to **noise** and stability
AU Poppe, H.; Van Rooijen, H. W.
CS Lab. Anal. Chem., Univ. Amsterdam, Amsterdam, 1018 WV, Neth.
SO Analytical Chemistry Symposia Series (1984), 18(Mod. Trends Anal. Chem., Pt. A), 77-95
AB The understanding of the various surface processes which play a role in noise and stability of **electrodes** is only marginal and therefore an empirical approach to these problems is studied. After making an inventory of possible noise sources in **amperometric detectors** an exptl. program was carried out in order to identify the processes which give the main contribution to the noise. The double layer capacity translates voltage from potentiostat, ref. **electrode** and current amplifier into current noise. Exptl. evidence to this end was obtained from correlation functions, the obsd. dependency of the noise on the capacity and elec. models of the electrochem. system. These results are in accordance with a previous conjecture that the noise is proportional to the **electrode** area. Expts. to identify the factors which det. long term stability of the electrochem. response (the ageing problem) were not very successful. However, it was possible to devise an electrochem. reactivation method which restores the **electrode** activity and which can be used in situ and automatically overnight.

L6 ANSWER 17 OF 18 CA COPYRIGHT 2003 ACS
AN 100:16940 CA
TI **Noise** and drift phenomena in **amperometric** and coulometric **detectors** for HPLC and FIA
AU Van Rooijen, H. W.; Poppe, H.
CS Lab. Anal. Chem., Univ. Amsterdam, Amsterdam, 1018 WV, Neth.
SO Journal of Liquid Chromatography (1983), 6(12), 2231-54
AB Noise and drift phenomena in electrochem. **detectors** with solid **electrodes** for high-performance liq. chromatog. and flow-injection anal. are discussed. A relation between the capacity of the working **electrode** and the noise of the **detector** is demonstrated in 3 different ways, using direct correlation of noise with capacitance, time correlation functions, and elec. simulation of the cell properties. Conclusions are drawn with resp. to the prospects of various **measures** to improve the **detection** limit.

L6 ANSWER 18 OF 18 CA COPYRIGHT 2003 ACS
AN 95:180092 CA
TI Electrochemical **detectors** in liquid chromatography. A short review of **detector** design
AU Weber, Stephen G.; Purdy, William C.
CS Dep. Chem., Univ. Pittsburgh, Pittsburgh, PA, 15260, USA
SO Industrial & Engineering Chemistry Product Research and Development (1981), 20(4), 593-8
AB Design criteria for the construction of electrochem. (**amperometric** and coulometric) **detectors** which operate in flowing streams are reviewed with 52 refs. Equations are given for the sensitivity of each **electrode** design as a function of the geometrical parameters (cell dimensions, **electrode** area) and phys. parameters (liq. flow rate, diffusion coeff., kinematic viscosity). The sensitivities of common **detectors** are similar; on the order of 0.5 μA/μM/1.0 cm2 **electrode** area for a 1-electron oxidn. or redn. The use of multiple **electrodes** is discussed. Selectivity can be gained by using 2 **electrodes** operating at different potentials. Selectivity and increased precision result from using 1 **electrode** to oxidize or reduce the constituents of the flow stream while a second **electrode** downstream detects the products of the first **electrode** reaction. Practical points on the operation of the **detector**, esp. **noise redn.**, are given.

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